Institute of Education

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Working Paper No. 18-03
April 2018

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Are Schools Different? Wellbeing and Commitment Among Staff in Schools and Elsewhere

Alex Bryson[1], Lucy Stokes[2] and David Wilkinson[3]

Abstract

Using nationally representative linked employer-employee data for Britain in 2004 and 2011 we find school staff are more satisfied and more contented with their jobs than "like" employees in other workplaces. The differentials are largely accounted for by the occupations school employees undertake and perceptions of job quality. School employees are also more committed to their organization than non-school employees, a difference that remains large and statistically significant having conditioned on job quality, human resource management practices (HRM), managerial style and other features of employees' working environment. Using panel data for workplaces and their employees observed in 2004 and 2011 we find increases in organizational commitment are linked to improvements in workplace performance in schools, but not in other workplaces.
Key words: schools; teachers; job satisfaction; job contentment; organizational commitment; school performance; human resource management; managerial style.

JEL codes: I21
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Acknowledgements: We thank participants at the 2018 Royal Economic Society Annual Conference for comments and the Nuffield Foundation (grant EDU/41926) for funding. The authors acknowledge the Department for Business, Energy and Industrial Strategy, the Economic and Social Research Council, the Advisory, Conciliation and Arbitration Service and the National Institute of Economic and Social Research as the originators of the Workplace Employee Relations Survey data, and the Data Archive at the University of Essex as the distributor of the data. All errors and omissions remain the sole responsibility of the authors.

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1. INTRODUCTION

The quality and performance of school staff, particularly teachers, has been identified as an important factor in pupil attainment. It is unsurprising, therefore, that policy makers express concern at schools' ability to recruit, retain and motivate high calibre staff. It is well-established that worker wellbeing, particularly worker job satisfaction, reduces employees' probability of quitting a job (Green, 2010). More recently, research has linked improvements in worker wellbeing to improvements in workplace performance (Bryson et al., 2017a). The mechanisms are not well-understood, but some experimental studies point to a relationship between worker wellbeing and higher labour productivity (Oswald et al., 2015). A long-standing literature in organizational psychology finds positive associations between employees' organizational commitment and organizational performance. Yet few studies compare employee wellbeing and commitment in schools with "like" employees elsewhere or consider the effects of workplace policies and practices on school staff wellbeing and commitment, and the potential importance of staff wellbeing and commitment to school performance, even though teachers and other school staff face long working hours and a very stressful working environment (Travers and Cooper, 1993).

We fill this gap in the literature using nationally representative linked employer-employee data for Britain to establish how school employees' wellbeing and organizational commitment compares with that of observationally similar employees in other workplaces, and whether any differential is related to differences in occupation, job quality, managerial style or workplace management practices. We then consider how worker wellbeing and commitment is linked to workplace performance.

Our analysis extends to all employees in schools and elsewhere, not just teachers. We focus on three dimensions of job attitudes that employers may find desirable in their employees and which might, conceivably, influence the way in which employees perform, namely job satisfaction, job-related contentment, and organizational commitment. First, using Ordinary Least Squares (OLS) estimation we compare the wellbeing of school employees with observationally similar employees working in other workplaces to see what, if anything, is distinctive about the school environment. In doing so, we take account of employees' demographic characteristics, the jobs they perform, employees' perceptions of job quality, the role played by managerial practices – what we term Human Resource Management (HRM) – and managerial style as indicated by the stated preferences of managers and their gender.

Second, we exploit the multiple employee observations we have per workplace to run workplace fixed effects models where we compare employee job satisfaction, contentment and commitment *within* workplaces. We run separate models for employees in schools and non-schools, to see what role is played by their perceived job quality in explaining differences in job attitudes.

Third, we pool the data for employees in schools and non-schools, as we did for the OLS regressions, but this time we reweight non-school employees using entropy balancing weights such that the mean values for their demographic, job and workplace covariates are identical to those for school employees. Having matched school and non-school employees in this fashion we estimate the effects of being in a school environment on employee job attitudes, along with the effects of perceived job quality and HRM practices. A comparison of estimates with and without conditioning on occupation provides insights into the extent to which differentials are accounted for by occupational differences across schools and other workplaces.

Finally, we estimate workplace panel equations for workplace performance in schools and non-schools using nine metrics. Running these first difference equations for schools and non-schools separately we establish whether there is any association between changes in employee attitudes to their jobs and changes in workplace performance between 2004 and 2011.

We find school staff are more satisfied and more contented with their jobs than "like" employees in other workplaces. The differentials are largely accounted for by the occupations school employees undertake and perceptions of job quality. School employees are also more committed to their organization than non-school employees, a difference that remains large and statistically significant having conditioned on job quality, human resource management practices (HRM), managerial style and other features of employees' working environment. Using panel data for workplaces and their employees observed in 2004 and 2011 we find increases in organizational commitment are linked to improvements in workplace performance in schools, but not in other workplaces.

The remainder of the paper is organized as follows. In Section Two we review the literature on workers' job attitudes in schools and elsewhere, and its links to workplace performance, identifying hypotheses to be tested in the data. In Section Three we present the data and our estimation techniques before presenting our results in Section Four. In a concluding section, we reflect on what the results tell us about the nature of the school environment and identify implications for school management and policy.

2. LITERATURE AND HYPOTHESES

School staff wellbeing has attracted the attention of researchers for at least half a century (Sergiovanni, 1967). Most of this research has focused on *ill-being*, as indicated by stress and anxiety (Chaplain, 2008; Kyriacou, 2001) and has sought to shed light on problems of absenteeism and burnout (Howard and Johnson, 2004; Chan, 2011). The studies say little about *wellbeing* and are usually confined to teachers. One exception is Kern et al. (2014) whose survey of employees at a single school in Australia covered all staff and focused on multiple measures of well- and ill-being, including job satisfaction and organizational commitment. The study found co-worker relations and work engagement were positively and significantly associated with both job satisfaction and organizational commitment.

There is a common perception that school environments lead to early burnout, a proposition which appears consistent with the observation that a very high percentage of teachers quit the profession early in their careers (Darling-Hammond and Skyes, 2003). However, few studies compare the job attitudes of teachers, or school staff more broadly, with non-school staff. It is therefore difficult to know whether school-based employees' wellbeing and commitment is better or worse than that faced by employees elsewhere. An exception is Rose's (2003) study of job satisfaction across occupations using the 1998 Workplace Employment Relations Survey. He uncovers dramatic differences in job satisfaction across occupations, and among those engaged in different occupations in schools. Educational assistants had the fourth highest job satisfaction scores of any occupation, whereas secondary school teachers were below average and primary school teachers were seventh-bottom in the occupational league, just above assembly line workers. It is therefore important to distinguish between occupational groups within schools, as well as comparing school and non-school workers, when examining their wellbeing.

Although it is not the focus of his analysis, Rose (2003: 526) notes that primary school teachers were also among the occupations with the highest levels of work-related stress. Earlier work had also pointed to high levels of occupational stress suffered by teachers (Travers and Cooper, 1993). Johnson et al. (2005) designed a survey instrument to explore factors leading to work-related stress, guided by Cooper and Marshall's (1976) earlier work which had identified five broad sources: factors intrinsic to the job such as work overload and time pressures; role ambiguity and conflict; career development, including job insecurity; relationships at work, including those with one's supervisor and colleagues; and organizational structure and climate, including involvement in decision-making. They studied twenty-six occupations: teaching was one of six that scored below average on work-related health, wellbeing and satisfaction. In speculating about the causes of this stress, they note that the six most stressful occupations were all characterised by "emotional labour…the emotions which the employees are required to display as part of their job have to follow strict rules".

Like Rose, Johnson et al. (2005) found teachers were experiencing higher stress levels and lower job satisfaction than other school workers, notably head teachers and teaching assistants. The authors speculate: "One possible reason for this is that teachers are working in close contact with children every working day and therefore will be experiencing high levels of emotional labour. Head teachers and teaching assistants do not generally take charge of the classroom or if they do it is for short periods of time or whilst under supervision" (op. cit.: 185). They go on to speculate that, in addition to the issues of emotional investment and accountability, teachers face work and time pressures linked to administrative functions which have been increasing over time (Moriarty et al., 2001). Johnson et al. (2005) conclude: "Of course much of this is speculative and in order to tease out the reasons behind these differences a full study on stress within our schools would be required" (op. cit.: 185).

Following on from Johnson et al. (2005) we shed light on the job and work environment correlates of employee wellbeing in schools across different occupations, and compare these to correlates of worker wellbeing in non-school workplaces. In doing so we can examine the role played by job traits such as job demands and job control which are emphasised in Karasek's (1979) theoretical model of work-related stress, as well as perceived managerial support which was added to the job control/job demand model by Payne (1979) and Karasek and Theorell (1990), and has subsequently been found to play an important role in explaining variance in worker stress and wellbeing (Wood, 2008; Böckerman et al., 2017). We also account for perceptions of job insecurity which have been identified as important by Johnson et al. (2005).

The management literature focuses on the role managerial practices can play in eliciting positive employee attitudes at work and harnessing these positive attitudes to improve workplace performance. This strand of research goes back nearly half a century to the work of Lawler and Hall (1970) and Walton (1982), but it was Walton's (1985) work on the role of Human Resource Management (HRM) in bringing about a transition from "control to commitment" that spawned wider interest in what became known as "high-commitment workplace practices" and subsequently "high-performance workplace practices". Recent empirical evidence establishes strong associations between the intensity with which HRM is implemented in workplaces and employees' job satisfaction and organizational commitment (White and Bryson, 2013; Bryson and White, forthcoming). HRM intensity is also linked positively to improvements in workplace performance, in schools and elsewhere (Bryson et al., 2017c). However, it is unclear what role HRM practices might play in school employees' wellbeing and organizational commitment. Employers make strategic choices about the nature

and type of HRM practices they deploy. They may be deployed by management as a means of intensifying labour, as some find (Ramsay et al, 2000), rather than empowering them, resulting in diminished satisfaction and commitment.

Furthermore, in occupations such as teaching commitment to the employer is often bound up with commitment to the occupation one is performing, and it is this, rather than employer practices, that can determine employees' organizational commitment, via a sense of occupational mission (Besley and Ghatak, 2005). In Besley and Ghatak's terms, the education of children is a "mission-oriented" activity in which "motivated agents, ie. agents who pursue goals because they perceive intrinsic benefits from doing so" (op. cit.: 616) generate a collective good. Consequently, the HRM practices capable of generating commitment in other settings, such as incentive payments, may be less relevant in a school setting, while nonpecuniary aspects of motivation could be salient.[4] Besley and Ghatak (2005: 627-628) also emphasise that increases in the decentralisation of education provision, coupled with competition between schools, can result in differentiation between school missions, resulting in efficiency-enhancing sorting of teachers across schools, induced in part by schools' ability to signal their differentiated mission from other schools.

Workers' wellbeing is important in and of itself: economists often use it as a proxy for utility (Frey and Stutzer, 2002) while psychologists see measures of wellbeing as indicators of human flourishing (Keyes, 2002). However, one might argue that it is only of direct importance to employers if workers' job attitudes and wellbeing influence their productive behaviours and that of the organization. Psychologists have long-argued that individual workers' wellbeing

[4] Bryson et al. (2017b) show performance pay is associated with positive job attitudes in the private sector, but not in the public sector.

and job attitudes have the potential to affect organizational performance when those individual-level attitudes and behaviours become collectivized, when they are broadly held, and when they are important for the organization (Currall et al., 2005: 616-618). Cross-sectional studies for the United States find positive correlations between employee job attitudes and satisfaction and school performance consistent with the "collectivization" of individual satisfaction and job attitudes (Ostroff, 1992; Currall et al., 2005). However, it is difficult to infer the direction of the causal relationship between job attitudes/wellbeing and organizational performance with cross-sectional data, nor discount the possibility that the correlation is driven by fixed differences across schools.[5]

A recent study using the 2004-2011 Workplace Employment Relations Survey Panel found that improvements in mean worker job satisfaction were associated with improvements in workplace performance (Bryson et al., 2017a). The effect was apparent in improvements in workplace financial performance and the quality of output/service offered, but not in labour productivity. Furthermore, there was no association between changes in employees' job-related contentment and workplace performance. We use the same data source and the same measures of job satisfaction and job-related contentment to compare changes in job attitudes and change in workplace performance. But we extend the analyses to include employees' organizational commitment and we estimate effects for nine workplace performance measures. To our knowledge, this is the first study to examine links between changes in organization-level employee wellbeing and commitment and changes in school performance.

The review of the existing literature above leads to five hypotheses we test with data. First, school staff are predicted to exhibit lower job satisfaction and lower job contentment than non-

[5] In their study of 193 branches of a US bank Bartel et al. (2011) found branches in which employees had more favourable attitudes had better sales performance and were less likely to shut down, but in panel analyses these links were explained by other, unobserved characteristics of the branches.

school staff, but higher organizational commitment. Second, employee job-related wellbeing and commitment will differ markedly within schools according to the occupation the employee is engaged in, with teachers exhibiting lower job satisfaction, lower job contentment and higher organizational commitment than other staff. Third, job quality is a key determinant of worker wellbeing and organizational commitment in school and non-school workplaces alike, with poorer job quality in schools accounting for much of the lower job satisfaction and job contentment expressed by school staff compared with employees elsewhere. Fourth, more intensive HRM is liable to raise job satisfaction, job contentment and organizational commitment in schools and non-schools, though there are liable to be differential effects of pecuniary incentives on employees in the two sectors, with pecuniary incentives liable to have a detrimental impact on organizational commitment in schools. Fifth, we predict improvements in mean worker job satisfaction and organizational commitment will be positively correlated with improvement in workplace performance in schools and non-schools alike.

3. METHODS

In this section, we introduce our data, present the key measures used in our analyses, and describe our estimation strategy.

3.1 Data

Our data are the linked employer-employee Workplace Employment Relations Survey (WERS) 2004 and 2011. Appropriately weighted, they are nationally representative surveys of employees in Britain from workplaces with 5 or more employees covering all sectors of the economy except agriculture and mining (van Wanrooy et al., 2013). The analysis exploits three aspects of the survey. The first element is the cross-sectional data based on management

interviews, conducted face-to-face with the most senior workplace manager responsible for employee relations. The 2011 survey interviews were conducted in 2,680 workplaces between March 2011 and June 2012 with a response rate of 46%. The 2004 survey interviews were conducted in 2,295 workplaces between February 2004 and April 2005 with a response rate of 64% (van Wanrooy et al., 2013; Kersley et al., 2006).

The second element is the survey of employees where a management interview was obtained. Self-completion questionnaires were distributed to a simple random sample of 25 employees (or all employees in workplaces with 10-24 employees). In the 2011 survey 2,170 workplaces (81 percent) gave permission for employees to be interviewed. Of the 40,513 questionnaires distributed, 21,981 (54%) usable ones were returned.[6] In 2004, managers gave permission to interview employees in 86 percent of cases. 22,451 usable questionnaires were returned, a response rate of 61%.

The third element of the survey used in this paper is the panel component nested within the cross-sectional surveys. Among the 2,680 productive workplaces in 2011, 989 were panel workplaces that had previously been interviewed in 2004. The management response rate among this group of panel workplaces was 52 per cent. Six hundred of these contained employee respondents in both 2004 and 2011 (providing 7,943 employee responses in 2004 and 7,324 employee responses in 2011).

Survey weights have been devised for each element of WERS to account for sample selection probabilities and observable non-response biases (see Van Wanrooy et al, 2013: 212-3). We use these weights in our OLS, fixed effects and first difference models described in the

[6] An additional 3,858 questionnaires were distributed at 247 workplaces where there were no employee questionnaires returned. We assume that these questionnaires were never distributed by the employer (van Wanrooy et al., 2013: 210) so they are not included in the figures in the text.

estimation section, so that results can be extrapolated to the population from which the sample was drawn.[7]

Schools: schools are identified using their five-digit Standard Industrial Classification.[8] Managers are asked the formal status of the organization to which their workplace belongs, from which we distinguish public and private sector workplaces. We label private sector schools as private schools and public sector schools "state schools", to avoid confusion regarding the term "public school".[9]

There are 406 schools in the pooled cross-sectional data, over half of which are primary schools (Appendix Table A1). The panel contains 87 schools. Of these, 69 remain schools in both 2004 and 2011, 5 stop being schools and 13 become schools.[10]

Occupations in schools and elsewhere: Using 4-digit SOC 2010 codes which are available for 2004 and 2011 we identify the occupations of those in schools and elsewhere. WERS contains 5,100 employee respondents from schools, most of whom are teachers or teaching assistants – an average of 12.6 employee observations per school. Of these, 1,690 are respondents in panel workplaces. (We are unable to establish whether the employee respondents are the same in 2004 and 2011 because they do not have unique identifiers. However, it does mean we can look at change in employee traits in continuing establishments over time).

In addition to the 3201 teachers in schools WERS has a further 947 teachers (521 in 2004 and 426 in 2011) who do not work in schools. There are also 81 teaching assistants not working in

[7] The survey weights were not used in the entropy balancing estimates.
[8] Under the SIC 2003 classification the codes identifying schools are 80100, 80210, 80220. Under the SIC 2007 classification the relevant codes are 85100, 85200, 85310, and 85320. Primary schools are coded 80100 under SIC 2003 and 85100 or 85200 in SIC 2007. Secondary schools are coded 80210 in SIC 2003 and 85310 in SIC 2007. Technical and Vocational schools are coded 80220 in SIC 2003 and 85320 in SIC 2007.
[9] In the UK "public schools" are private sector fee-paying schools.
[10] Most of the switchers are Technical/vocational schools switching into or out of being adult education centres or providers of specialist education.

schools. Of these 1,028 teachers and teacher assistants 733 are in higher education and 198 are in adult education.

Using the survey weights we find nearly 7 percent of all employees in WERS in 2004 and 2011 were teachers and a further two percent were teaching assistants. Of those in schools, 63 percent were teachers (66 per cent in 2004, 60 per cent in 2011), and 26 per cent were teaching assistants (rising from 20 per cent in 2004 to 32 per cent in 2011).

The unweighted frequencies for occupations in schools and elsewhere are presented in Appendix Table A2 with the full occupational descriptions for school employees appended in Appendix Table A3.

Wellbeing and Organizational Commitment: in 2004 and 2011 WERS collected information on eight aspects of employees' job satisfaction: pay, sense of achievement, scope for using initiative, influence over the job, training, job security, involvement in decisions and the work itself. Each domain is rated on a five-point scale from 'Very satisfied' to 'Very dissatisfied'. The eight measures were each recoded into ratings ranging from -2 (Very dissatisfied) to + 2 (Very satisfied) and used to create an additive measure of job satisfaction for each employee with a scale running from -16 to +16.[11]

A job contentment scale was constructed in a similar manner based on employee responses to the following question: "Thinking of the past few weeks how much of the time has your job made you feel...tense, uneasy, worried?' Responses are coded along a five-point scale: 'all of the time', 'most of the time', 'some of the time', 'occasionally' and 'never'. The items are a subset of the anxiety-contentment scale that forms part of Warr *et al.*'s (2013) Multi-Affect

[11] Factor analysis of the eight items reveals a single factor with an eigen value of 4.07 accounting for 51 percent of the variance in job satisfaction scores. The additive scale also has a high scale reliability coefficient, or alpha, of 0.87.

indicator.[12] Each of the three items was recoded into a rating ranging from -2 (All of the time) to + 2 (Never) and the three items were then summed to create an additive scale running from -6 to +6. Higher values on this scale indicate greater job contentment.

Organizational commitment is constructed from three items which have counterparts in the widely used six-item Lincoln-Kalleberg measure of affective organizational commitment. Employees are asked "To what extent do you agree or disagree with the following statements about working here? I share many of the values of my organization; I feel loyal to my organization; I am proud to tell people who I work for". The items were recoded into a rating ranging from -2 (strongly disagree) to +2 (strongly agree) and summed to create an additive scale running from -6 to 6 with higher values indicating higher organizational commitment.[13]

For the workplace performance analysis, the employees' scores on the additive scales were aggregated to compute the overall mean levels of job satisfaction, job contentment and organizational commitment for the workforce in 2004 and 2011.

Workplace performance: workplace performance is measured using the manager's subjective assessment on three separate measures.[14] We follow Bryson et al. (2017a) in the construction of the dependent variable. It is an additive scale combining managers' responses to three questions: "Compared to other workplaces in the same industry how would you assess your workplace's...financial performance; labour productivity; quality of product or service". Responses are recorded on a 5-point Likert scale from "a lot better than average" to "a lot below average". The "a lot below average" and "below average" codes are collapsed and scales scored from 0 to 3 where 3="a lot above average". Summing them gives a scale of 0 ('below average'

[12] Factor analysis of the three items reveals a single factor with an eigen value of 2.29 accounting for 76 percent of the variance in job contentment scores. The additive scale has an alpha of 0.84.
[13] Factor analysis of the three items reveals a single factor with an eigen value of 2.32 accounting for 77 percent of the variance in organizational commitment scores. The additive scale has an alpha of 0.85.
[14] For a discussion of these measures and their relationship with accounting measures of performance see Forth and McNabb (2008).

performance on all three items) to 9 (performance 'a lot better than average' on all 3 items). The pairwise correlations between the three measures vary between 0.57 (financial performance and product/service quality) and 0.63 (financial performance and labour productivity). Factor analysis identifies a single factor with an eigen value of 2.19, and an alpha reliability coefficient for the composite performance scale is 0.81. The mean for schools is slightly above that for non-schools (5.36 versus 5.08) and the distributions are similar (standard deviations of 1.86 and 1.71 respectively). The panel analogue is simply the difference between the 2004 score and the 2011 score.

We supplement this measure of workplace performance with analyses of worker absence rates, worker quit rates, rates of worker injury and illness, and the climate of employment relations. Discussion of those measures is presented in the results section later.

Job quality: In addition to conditioning on log hourly wages we follow van Wanrooy et al. (2013, Chapter 6) in capturing four aspects of non-pecuniary job quality. The first two are measures of job control and job demands that are central to Karasek's (1979) model of worker wellbeing. The job control measure is an additive scale based on responses to the question: "In general, how much influence do you have over the following…the tasks you do in your job; the pace at which you work; how you do your work; the order in which you carry out tasks; the time you start or finish your working day". Responses to each item are coded from 0 ("None") to 3 ("A lot"). Principal components analysis reveals a single factor with an eigen score of 3.02 and an alpha reliability coefficient of 0.81. Our measure is an additive scale which simply sums these scores from 0 to 15 (where 15 is the greatest amount of job control). The job demands variable consists of two items (eigen value 1.42, alpha 0.58) based on how strongly employees agreed with the following statements: "My job requires that I work very hard" and "I never seem to have enough time to get my work done". The two items are summed with the scale running from zero ("strongly disagree" on both items) to eight ("strongly agree" to both

items). The third aspect of job quality we capture is a managerial score which shows how much job support employees believe they receive from management. It is based on six items (a single factor with eigen value of 4.42 and an alpha reliability score of 0.93). Employees are asked how much they agree with the following statements: "Managers here…understand about employees having to meet responsibilities outside work; encourage people to develop their skills; can be relied upon to keep their promises; are sincere in attempting to understand employees' views; deal with employees honestly; treat employees fairly". The additive scale runs from 0 ("strongly disagree" on all items) to 24 ("strongly agree" on all items). The fourth non-pecuniary element of job quality is perceived job security, a single item running from (0,4) based on agreement with the statement "I feel my job is secure in this workplace" where 4 indicates strong agreement.

Human resource management: we follow Bryson et al. (2017c) in our construction of HRM domains based on binary (0,1) indicators identifying the presence or absence of 48 HRM practices from eight HRM domains. These domains are presented in Appendix Table A4. They include five that are commonly the focus in the "high performance work systems" literature, namely teams, training, participation, selection, and incentives, together with target setting and record keeping – emphasised in the work of Bloom et al. (2014) – and total quality management (TQM) which is often identified as key to lean production. The Kuder-Richardson coefficients of reliability are presented in the last column of Appendix Table A4. They range from 0.47 for the TQM indicators to 0.85 for the eleven targets. The KR20 for all 48 items together is 0.88.

Because we wish to compare the quantitative size of the associations between our outcomes of interest and HRM across domains each is converted into a z-score with a mean of zero and standard deviation of 1.

Managerial style: we capture managerial style using four dummy variables which may affect worker wellbeing and organizational commitment and workplace performance, and may also affect employers' orientation to job quality and use of HRM practices. In their absence, our estimates might be vulnerable to omitted variables bias with HRM and job quality simply proxying underlying managerial style. These four dummy variables identify female Human Resource Managers[15]; managerial disagreement or strong disagreement with the statement "It is up to individual employees to balance their work and family responsibilities"; managerial strong agreement with the statement "We do not introduce any changes here without first discussing the implications with employees"; and strong agreement with the statement "We would rather consult directly with employees than with unions".

Controls: cross-sectional estimates of the relationship between the school environment and employees' job satisfaction, job contentment and organizational commitment rely on the assumption that any differences between employees working in school and non-school workplaces that might be correlated with worker job attitudes are accounted for by conditioning on observed features of the workplace and its employees. In addition to the key variables of interest presented above (school, occupation, job quality, HRM and managerial style) we condition on a range of employee demographics (gender, age, race, marital status, disability status, highest academic qualification, union membership), job traits (tenure, contract type, and usual hours). We also condition on the following workplace characteristics: whether the workplace is in the public sector, whether the workplace is a stand-alone workplace as opposed to belonging to a multi-establishment organization; number of employees at the workplace; regional location; and being an older establishment aged 25 years or more. The composition of the workforce is captured with controls identifying the proportion of old (50+) and young

[15] There is a large literature indicating that women manage differently to men (Rosener, 1990) and that the presence of women in key managerial positions can affect firm performance (Christiansen, 2016).

(16-21 years) workers; age diversity[16]; the proportion female and gender diversity; the proportion from non-white ethnic minorities; the proportion part-time; the proportion in union membership; the percentage in managerial posts; the percentage in professional posts; and the percentage in associate professional and technical posts.

3.2 Estimation

We adopt three estimation strategies to establish whether there is a robust relationship between working in a school environment and employees' job satisfaction, job contentment and organizational commitment in schools and other workplaces in Britain. We illustrate with reference to job satisfaction, but the same models were run for job contentment and organizational commitment.

First, we run pooled OLS estimates of the following form:

$$(1) \qquad js_i = \alpha + \gamma school_i + \lambda occup_i + \beta hrm_i + \delta year_i + \varphi jobqual_i + \pi X_i + \varepsilon_i$$

where job satisfaction *js* of individual *i* is a function of school status, occupation, HRM, job quality, a vector of controls *X* discussed above, and a year dummy. The Greek letters are parameters to be estimated. All models are survey weighted so that results can be extrapolated to the population of employees working in workplaces with 5 or more employees in Britain. In addition to these models we run separate models for employees in schools and those in non-schools to see how correlations between worker wellbeing and commitment and occupation, job quality, HRM and managerial style differ across the two environments.

[16] Age diversity is calculated as one minus the sum of the squared age share terms where the age shares relate to those aged 16-21, 22-49 and 50+. The index has a minimum value of zero if there is only one category represented within the workplace and, as in our data, where we have three age categories, a maximum value of 0.67 if all categories are equally represented.

Descriptive statistics for the dependent and independent variables for the OLS estimation sample are presented in Appendix Table A5.

Second, we run workplace fixed effects models of the following form for schools and non-schools separately:

$$(2) \qquad js_{iw} = \alpha + \lambda occup_{iw} + \varphi jobqual_{iw} + \pi X_{iw} + \delta workplace_{w} + \varepsilon_{iw}$$

where js_{iw} represents the job satisfaction of worker i in workplace w, which is a function of individual worker job traits such as occupation[17], job quality and the demographic and job traits contained in the X vector, together with the workplace fixed effects $workplace_w$. Fixed workplace traits that appeared in equation (1) drop out of the fixed effects model because the workplace fixed effects capture them, together with workplace-level unobservables that might potentially bias the association between job satisfaction and observed factors that differ across workers within the workplace.[18]

Third, we re-run OLS estimates using entropy balancing weights (Hainmueller and Zu, 2013) to balance covariates for employees in schools and non-schools. The procedure reweights the employees in non-schools so that the resulting distribution of covariates satisfies a set of specified moment conditions. All observations receive a weight so the full sample is available for estimation and, in contrast to matching using a propensity score, there is no need for the enforcement of common support. We balance on means for worker demographic, job, and workplace controls. Prior to balancing, employees in schools tended to be more female, older, more highly educated, more likely married, more likely to work part-time and also more likely

[17] Because we run models for schools and non-schools separately we use standard occupational classifications that apply to both sets of workplaces in these models, rather than distinguishing between school-specific occupations and the 'other' category as we do in other estimates throughout the paper.

[18] Panel workplaces appear in both 2004 and 2011 but we are unable to trace individual employees over time within those workplaces. The workplace fixed effects are actually workplace X year fixed effects. The pooled sample comprises employees from 327 schools and 2,992 non-schools.

to work long hours. School workplaces were smaller, older, more unionised and much more likely to be in the public sector. When weighted with entropy weights these differences disappear: the two samples are virtually perfectly balanced when weighted with the entropy balancing weights (Appendix Table A6).[19] It is as if employees have been randomly assigned their school status, at least on the basis of their observed traits, perhaps offering a sounder basis in making claims about the 'effects' of schooling on wellbeing and commitment than if one were to rely solely on OLS estimates.

Finally, we move to the workplace-level and use the two-wave panel data to estimate first difference models to establish the association between variance in employee wellbeing and commitment, on the one hand, and variance in workplace performance within workplaces over time. The advantage in doing so is that we net out time-invariant unobservable features of workplaces that may be correlated with performance and with school status. These models, which are run on schools and non-schools separately, take the following form:

(3) $\Delta p_W = \beta \Delta \overline{JS}_W + \gamma \Delta \overline{JC}_W + \varphi \Delta \overline{OC}_W + \delta \Delta \overline{W}_W + \delta \Delta Nw + \epsilon$

where $p\Delta$ denotes changes in workplace performance between 2004 and 2011, with performance variously defined using the nine outcomes described in the results section below. Workplace means for job satisfaction, job contentment and organizational commitment are entered simultaneously, together with the mean of log hourly wages at the workplace ($\overline{W}$) and the number of employees at the workplace (N_w). All panel estimates are survey-weighted so that one can extrapolate from the results to the population of workplaces that were operating in both 2004 and 2011.

4. RESULTS

[19] The r-squared for a linear estimator for school is zero when applying the entropy balancing weights.

4.1: Worker Wellbeing and Organizational Commitment in Schools and Other Workplaces

School employees' mean job satisfaction is 5.51 points on our (-16,16) scale compared to 4.20 points among non-school employees: in a model containing a school dummy and a 2011 dummy variable the school coefficient is 1.28 with a t-statistic of 8.46. However, there is no statistically significant difference once we account for differences between employees in schools and elsewhere: in Table 1, column 1 the differential is 0.207 (t-stat 1.40). In fact, the differential is large and statistically significant in an identical model (not shown) which excludes job quality (coefficient 0.818, t-stat=2.44). It is the introduction of the job quality variables that substantially reduces the coefficient on the school dummy and renders it non-significant. The implication is that school employees enjoy what they perceive to be higher job quality than employees elsewhere and it is this that lies behind their higher job satisfaction.

[INSERT TABLE 1]

The job quality variables are related to job satisfaction in the same way in schools and elsewhere, with pay, job control, support from management and perceived job security all positive and statistically significant, whereas job demands are negative and significant, in much the same way as one would expect under Karasek and Theorell's (1990) model (Table 1, columns 2 and 3). The HRM variables are not jointly significant in schools, although team-working is associated with lower job satisfaction. Similarly, in non-schools only one HRM domain is statistically significant: incentives are associated with lower job satisfaction, but in non-schools the HRM variables are jointly statistically significant.[20] The managerial style

[20] F(8, 2552) = 3.67 Prob > F = 0.0003

variables are jointly and individually non-significant in the school and non-school job satisfaction models.

School employees' mean job contentment is 1.82 points on our (-6, 6) scale compared to 2.01 points among non-school employees: in a model containing a school dummy and a 2011 dummy variable the school coefficient is -0.216 with a t-statistic of 3.12. However, conditioning on demographic, job and workplace characteristics including job quality and HRM, the coefficient becomes positive but small and non-significant (Table 1, column 4 coefficient 0.010, t-stat=0.09). In contrast to job satisfaction, the school coefficient becomes non-significant even in models excluding job quality.

As in the case of job satisfaction, a large part of the variance in job contentment accounted for by the model is accounted for by job quality. A model containing only a school dummy, a year dummy and the job quality measures has an r-squared of 0.29, compared to 0.32 for the full model. The job quality measures behave in a similar fashion to the way they do in the job satisfaction models, with one notable exception: log hourly pay is negatively correlated with job contentment. This is consistent with earlier research using WERS which found higher wages were associated with higher job satisfaction *and* higher job-related anxiety (Bryson et al., 2012).[21]

Managerial style and HRM practices are both jointly and individually non-significant for non-school employees' job contentment. In schools, job contentment is higher where managers say

[21] One potential reason for this association between higher wages and lower job contentment suggested by Bryson et al. (2012) is that the responsibilities that come with higher earnings may generate job-related anxiety. (Recall that the job contentment scale is actually a dimension of job-related affect with job contentment at one end and job anxiety at the other). Another possibility is that a certain amount of job-related anxiety can increase labour productivity, for instance, by inducing additional effort.

they ‘strongly agree’ with the statement “We do not introduce any changes here without first discussing the implications with employees” and the managerial style variables are jointly on the margins of statistical significant (p>f=0.0675). Similarly, HRM practices are jointly on the margins of statistical significance (p>f=0.0827), with two of the eight HRM domains proving statistically significant – more targets are associated with lower job contentment, whereas training is associated with higher job contentment.

School employees exhibit greater organizational commitment than their non-school counterparts. Their mean organizational commitment score on our (-6, 6) scale is 3.28, compared with 2.22 for non-school employees. In a simple regression with a year dummy the school coefficient is 1.11 with a t-statistic of 25.34. The introduction of controls reduces the size of the differential to 0.317 but it remains highly statistically significant (Table 1, column 7). Once again, job quality accounts for most of the variance: together with year and school dummies a model incorporating job quality has an r-squared of 0.43. Job control, the management score capturing perceptions of job support by management, and perceived job security are all positively and significantly related to organizational commitment among employees in schools and elsewhere (Table 1, columns 8 and 9). However, whereas job demands are associated with lower job satisfaction and job contentment, they are *positively* linked to organizational commitment: it is possible that those who are committed to an organization are prepared to take on more onerous tasks. Whereas log hourly pay is positively and significantly associated with organizational commitment among employees outside the school sector, it is not significant among school employees. One possible interpretation, discussed in the literature section, is that “mission-oriented” individuals who are committed to educating children are not motivated by pecuniary rewards.

The four managerial style variables are both jointly and individually non-significant for organizational commitment of school and non-school employees. Similarly, HRM practices are neither jointly[22] nor individually significant for school employees' organizational commitment. However, HRM practices are jointly statistically significant in explaining variance in non-school employees' organizational commitment. Two practices are individually significant: non-school employees' organizational commitment is higher where the employer invests in employee selection, and it is lower where there is greater use of incentives.

[INSERT TABLE 2]

The separate school and non-school workplace fixed effects models in Table 2 broadly confirm the associations between job quality and employee wellbeing and commitment presented in Table 1, suggesting the OLS results are robust to unobserved fixed differences between workplaces. However, there is one notable difference. The negative association between log hourly pay and job contentment among school employees in the OLS estimates becomes positive and non-significant (Table 2, column 3), suggesting that something about higher-paying schools induces lower job contentment, rather than the higher wages per se. (The negative association between job contentment and higher wages is robust to the use of workplace fixed effects among employees outside the school sector – Table 2, column 4).

[INSERT TABLE 3]

The model specifications presented in Table 3 are the same as the specifications for the pooled OLS models in Table 1, except they are presented with and without occupational controls. They

[22] F(8, 276) = 1.36 Prob > F = 0.2132

also differ because the regressions are weighted with entropy-balancing weights which ensure that the mean values for school and non-school employees are virtually identical on all the co-variates listed in Appendix Table A6. They therefore provide a more robust basis for making causal inferences about the relationship between the school environment and employee job attitudes than the OLS models.

In the absence of occupational controls, school employees exhibit higher job satisfaction and job contentment than non-school employees (Table 3, columns 1 and 3).[23] However, there are no significant differences once occupation controls are introduced: the school advantage in job satisfaction and job contentment is accounted for by the occupational composition of workplaces. Teachers, teaching assistants and educational officers express greater job satisfaction than employees in other occupations, even conditioning on job quality – a finding that was not apparent in the OLS estimates presented in Table 1 column 1. Teachers and teaching assistants also express greater job contentment than other employees, although the effects are only statistically significant at a 90% confidence level.

These findings do not accord with prior research which suggests school staff express greater job-related anxiety and lower job satisfaction than many other workers. There are at least two potential explanations for the difference in results. Circumstances may have changed in a way that has improved the relative wellbeing of school employees. Alternatively, differences across studies may reflect the possibility that other studies tend to rely on simple descriptive comparisons of wellbeing and commitment among workers in different occupations, or else they condition on relatively few co-variates to make *ceteris paribus* comparisons. To

[23] This is despite the fact that school and non-school employees are balanced on single-digit occupation via the entropy balancing weights.

investigate further we reran the job contentment estimates conditioning simply on occupation dummies, a school dummy and a year dummy. In the absence of entropy balancing weights teachers have significantly lower job contentment than employees in "Other" occupations (coefficient -0.217, t-stat=2.43) whereas teaching assistants are not significantly different from "Other occupations" (0.145, t=1.18).[24] The implication is that the association between teaching and higher job-related stress and anxiety is not apparent having reweighted the data such that school staff appear identical to non-school staff on their mean demographic, job and workplace characteristics (see Appendix Table A6). The inference is that failure to balance school and non-school employees on other co-variates in the model may account for over-estimation of the relative job-related anxiety of teaching staff identified in earlier studies.

School employees also have higher organizational commitment than non-school employees. However, in this case, although the differential falls somewhat when conditioning on occupation, the differential remains large and statistically significant (Table 3, columns 5 and 6). Teaching assistants have significantly higher organizational commitment than other employees, with teachers close behind (coefficient 0.381, t-stat 1.85) but the school effect is apparent over and above these occupational effects.

The entropy balanced estimates also reveal new insights into the relationship between employee job attitudes and job quality, HRM and managerial style. Among the job quality measures, only two – perceived job security and perceived managerial support – are positive and statistically significant for job satisfaction, job contentment and organizational commitment. Job control is positive and significant for satisfaction and commitment, but is not

[24] We get similar results estimating the same regression using survey weights. When doing so the teacher coefficient is -0.254 t-stat=1.82, while the teacher assistant coefficient is 0.185 t-stat=1.09.

significant for job contentment. Log hourly pay is negatively linked to job contentment, and is not significant for job satisfaction or organizational commitment.

HRM measures are not jointly statistically significant for job satisfaction or job contentment. However, although none of them are individually statistically significant, the HRM domains are jointly statistically significant in accounting for variance in organizational commitment, whether one conditions on occupation or not.[25]

The four managerial style variables are not jointly statistically significant in any of the models run with balancing weights, although a manager's preference for direct communication over communication via a trade union is significantly associated with higher employee job contentment and organizational commitment.

[INSERT TABLE 4]

Are changes in employee job attitudes linked to changes in workplace performance? The answer to this question is presented in Table 4 which presents first difference models estimating the association between changes in employees' mean job satisfaction, job contentment and organizational commitment, for nine measures of workplace performance. The models, which also condition on changes in the employment size of workplaces and changes in log hourly wages, are run separately for schools and non-schools. Changes in job satisfaction are statistically significant in only two out of eighteen models – increases in employee job satisfaction are linked to improved workplace performance in non-schools and a better climate

[25] Without occupational controls F(8, 2825)=2.42, p>f=0.0133. With occupational controls F(8,2825)=2.38, p>f=0.0148.

of employment relations in schools. Increased job contentment is associated with improved climate in non-schools but is non-significant in the remaining seventeen models. The strongest results relate to improvements in organizational commitment in schools: increased organizational commitment is associated with improved workplace performance, as measured by financial performance, labour productivity, quality of service, and the additive measure based on all three, and is also associated with reductions in quit rates. None of these associations are apparent in non-schools, indicating that the returns to higher organizational commitment are confined to the school sector.

5. DISCUSSION AND CONCLUSION

Using nationally representative linked employer-employee data for Britain in 2004 and 2011 we have investigated factors associated with three aspects of employee job attitudes, namely job satisfaction, job contentment and organizational commitment. We then investigated links between changes in employee job attitudes and the performance of school and non-school workplaces.

Based on earlier literature we had hypothesised that school staff would exhibit lower job satisfaction and lower job contentment than non-school staff. This proved not to be the case. Instead we find school staff are more satisfied and more contented with their jobs than "like" employees in other workplaces, though the differentials are largely accounted for by the occupations school employees undertake and perceptions of job quality. However, we also hypothesised that school employees would exhibit greater organizational commitment than employees elsewhere, in part because they were likely to be "mission-oriented". School employees were more committed and, although some of this is accounted for by the occupations they undertake, there remains a school effect, over and above that which can be

accounted for by occupational choice alone. The difference remains large and statistically significant having conditioned on job quality, human resource management practices (HRM), managerial style and other features of employees' working environment.

Unsurprisingly, job quality was identified as a key determinant of worker wellbeing and organizational commitment in school and non-school workplaces alike. However, we had hypothesised that those working in schools would experience poorer job quality than other employees, and that this might partly account for differentials in job satisfaction and job contentment. Instead, we found positive job satisfaction and job contentment differentials in schools relative to non-schools which partly reflected better non-pecuniary job quality in schools compared to elsewhere.

We had also hypothesised that more intensive HRM is liable to raise job satisfaction, job contentment and organizational commitment in schools and non-schools, though there are liable to be differential effects of pecuniary incentives on employees in the two sectors, with pecuniary incentives liable to have a detrimental impact on organizational commitment in schools. In fact HRM and managerial style were far less influential than anticipated. They were far less significant than job quality in explaining job satisfaction, job contentment and organizational commitment in both schools and other workplaces. HRM practices were jointly statistically significant in explaining variance in organizational commitment in the entropy-balanced estimates, but there were no clear, large associations between particular practices and employee job attitudes that were robust to alternative estimation techniques.

Finally we predicted that improvements in mean worker job satisfaction and organizational commitment would be positively correlated with improvements in workplace performance in

schools and non-schools alike. In fact, whereas increasing job satisfaction was associated with higher workplace performance in non-schools – reflecting earlier findings with these data for the whole economy (Bryson et al., 2017a) – neither increased job satisfaction nor increased job contentment were associated with changes in school performance. Instead, school performance improved with increased organizational commitment.

What implications do these analyses have for the management of employees in schools and elsewhere? First, employers intent on improving employee wellbeing and organizational commitment should focus their attention more on non-pecuniary job quality, rather than on HRM, managerial style or pay, since non-pecuniary job quality tends to have sizeable effects on all three job attitudes. Second, investments in employees' organizational commitment may give rise to improvements in school financial performance, labour productivity and quality of service, as well as reducing voluntary quit rates.

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Table 1: OLS Models, Pooled 2004-2011

	Job Satisfaction			Job Contentment			Organizational Commitment		
	All	Schools	Non-schools	All	Schools	Non-schools	All	Schools	Non-schools
School	0.207			0.010			0.317		
	(1.40)			(0.09)			(4.08)**		
Occupation (ref.: Other)									
Teacher	0.097	0.127	0.147	0.228	0.257	0.308	-0.009	0.188	-0.046
	(0.62)	(0.33)	(0.77)	(2.21)*	(1.32)	(2.38)*	(0.11)	(1.22)	(0.43)
Teaching Assistant	0.151	0.438	-0.049	0.223	0.225	-0.154	0.263	0.212	0.473
	(0.75)	(1.09)	(0.29)	(1.95)	(1.06)	(0.66)	(2.60)**	(1.30)	(2.10)*
Education Officer	0.346	1.138	0.371	-0.087	0.926	-0.239	-0.263	0.880	-0.390
	(0.90)	(2.23)*	(0.84)	(0.35)	(3.12)**	(0.98)	(1.36)	(4.01)**	(2.03)*
Administrator	-0.020	0.194	-0.021	0.046	0.393	0.043	-0.004	-0.116	0.000
	(0.21)	(0.39)	(0.22)	(0.77)	(1.21)	(0.72)	(0.06)	(0.47)	(0.00)
Nursery Nurse	-0.256	0.040	-0.111	0.287	0.276	0.069	0.042	0.188	-0.115
	(0.93)	(0.08)	(0.29)	(1.68)	(0.94)	(0.30)	(0.25)	(0.84)	(0.45)
Job Quality:									
Log hourly pay	0.756	0.523	0.802	-0.289	-0.225	-0.297	0.161	0.078	0.169
	(11.49)**	(4.11)**	(11.07)**	(7.19)**	(2.78)**	(6.72)**	(4.88)**	(1.20)	(4.67)**
Job control	0.407	0.416	0.405	0.028	0.052	0.026	0.069	0.040	0.071
	(50.62)**	(22.55)**	(47.55)**	(5.03)**	(3.63)**	(4.42)**	(13.64)**	(4.30)**	(13.21)**
Job demands	-0.137	-0.259	-0.126	-0.591	-0.568	-0.593	0.055	0.070	0.053
	(6.88)**	(5.54)**	(6.01)**	(47.93)**	(16.90)**	(45.74)**	(5.21)**	(3.11)**	(4.78)**
Management score	0.509	0.501	0.510	0.098	0.126	0.095	0.238	0.262	0.236
	(77.44)**	(33.37)**	(73.08)**	(24.18)**	(13.52)**	(22.26)**	(59.07)**	(29.58)**	(55.04)**
Job security	1.441	1.199	1.465	0.422	0.255	0.436	0.299	0.187	0.309
	(47.42)**	(16.34)**	(45.38)**	(22.07)**	(6.03)**	(21.34)**	(15.98)**	(5.34)**	(15.50)**
HRM:									
Participation	0.012	-0.079	0.017	0.003	-0.040	0.005	0.032	0.058	0.030
	(0.33)	(0.97)	(0.42)	(0.14)	(0.75)	(0.18)	(1.40)	(1.61)	(1.23)
Selection	0.069	0.026	0.067	0.018	0.016	0.021	0.056	0.005	0.058
	(1.96)	(0.25)	(1.82)	(0.79)	(0.28)	(0.88)	(2.91)**	(0.11)	(2.87)**
Incentives	-0.155	-0.002	-0.169	0.003	-0.044	0.007	-0.057	-0.069	-0.058
	(4.26)**	(0.02)	(4.37)**	(0.15)	(0.82)	(0.30)	(2.65)**	(1.72)	(2.53)*
Record keeping	0.044	-0.076	0.051	-0.033	0.003	-0.032	0.017	0.032	0.015

	(1.22)	(0.81)	(1.36)	(1.35)	(0.05)	(1.23)	(0.81)	(0.84)	(0.67)
Targets	0.005	-0.033	0.007	0.024	-0.159	0.029	-0.015	-0.035	-0.014
	(0.11)	(0.33)	(0.18)	(0.96)	(2.47)*	(1.07)	(0.62)	(0.72)	(0.52)
Team-working	0.038	-0.156	0.049	0.020	-0.060	0.025	-0.013	-0.056	-0.010
	(1.21)	(2.30)*	(1.48)	(1.02)	(1.36)	(1.19)	(0.72)	(1.80)	(0.52)
Training	0.062	0.045	0.059	-0.041	0.127	-0.049	0.031	0.009	0.033
	(1.66)	(0.49)	(1.47)	(1.74)	(2.40)*	(1.96)	(1.35)	(0.21)	(1.33)
TQM	-0.005	0.057	-0.006	-0.040	0.031	-0.046	0.026	-0.040	0.031
	(0.15)	(0.63)	(0.15)	(1.77)	(0.61)	(1.95)	(1.12)	(0.86)	(1.22)
Managerial style:									
Work-life balance not up to individual	-0.087	0.076	-0.101	-0.074	0.119	-0.084	0.051	0.016	0.049
	(1.15)	(0.44)	(1.25)	(1.57)	(1.25)	(1.64)	(1.07)	(0.23)	(0.96)
Prefer to discuss change	0.083	0.205	0.078	0.027	0.034	0.029	0.077	-0.017	0.080
	(1.28)	(1.35)	(1.13)	(0.64)	(0.36)	(0.66)	(1.85)	(0.25)	(1.79)
Prefer direct communication	-0.026	0.002	-0.019	-0.057	0.231	-0.072	0.013	-0.006	0.010
	(0.38)	(0.02)	(0.26)	(1.33)	(2.47)*	(1.56)	(0.29)	(0.09)	(0.23)
Female HR Manager	-0.002	0.055	-0.011	-0.030	0.107	-0.041	-0.005	-0.098	0.003
	(0.03)	(0.35)	(0.17)	(0.78)	(1.21)	(0.99)	(0.12)	(1.47)	(0.08)
Constant	-12.328	-7.683	-12.524	2.184	1.606	2.250	-3.398	-2.257	-3.452
	(38.59)**	(3.91)**	(37.21)**	(10.96)**	(1.42)	(10.69)**	(18.07)**	(2.24)*	(17.17)**
R^2	0.63	0.62	0.64	0.32	0.39	0.32	0.45	0.48	0.44
N	30,470	3,489	26,981	30,470	3,489	26,981	30,470	3,489	26,981

(1) Controls: *Demographics*: gender; age (6 dummies); race; married; disability; highest qualification (8 dummies); union member. *Job*: tenure (5 dummies); contract type (3 dummies); usual hours (5 dummies). *Workplace*: public sector; single-establishment organization; number of employees; region (11 dummies); establishment aged over 25 years; % age 16-21; % age 50+; age diversity; proportion female; gender diversity; proportion non-white; proportion part-time; union density; % manager; % professionals; % associate professionals; and a year dummy. (2) T-statistics in parentheses. Statistical significance: * $p<0.05$; ** $p<0.01$

Table 2: Workplace Fixed Effects Models, Pooled Years 2004-2011

	Job Satisfaction		Job Contentment		Organizational Commitment	
	School	Non-school	School	Non-school	School	Non-school
Occupation (ref.: Manager)						
Professional	0.183	-0.041	-0.311	0.295	-0.184	-0.309
	(0.50)	(0.34)	(1.33)	(3.68)**	(1.10)	(4.29)**
Associate Professional	-0.704	-0.093	0.504	0.120	-0.376	-0.246
	(1.71)	(0.83)	(1.59)	(1.78)	(1.94)	(4.51)**
Administrator	-0.882	-0.365	0.038	0.334	-0.190	-0.219
	(2.12)*	(3.00)**	(0.14)	(4.63)**	(1.00)	(3.67)**
Skilled Trade	0.264	0.424	0.379	0.852	-0.062	-0.497
	(0.42)	(2.78)**	(0.85)	(8.72)**	(0.18)	(6.55)**
Caring	-0.177	0.255	0.220	0.310	0.140	-0.082
	(0.44)	(1.55)	(0.91)	(2.85)**	(0.78)	(1.03)
Sales	0.837	0.105	0.662	0.185	0.008	-0.032
	(1.30)	(0.62)	(0.91)	(1.72)	(0.02)	(0.34)
Operative	-2.602	-0.067	-0.441	0.809	-0.834	-0.571
	(2.00)*	(0.42)	(0.48)	(7.86)**	(0.98)	(6.85)**
Elementary	0.385	-0.088	0.528	0.604	-0.329	-0.394
	(0.79)	(0.59)	(1.69)	(5.98)**	(1.54)	(5.04)**
Job quality:						
Log hourly pay	0.499	0.786	0.018	-0.225	0.119	0.117
	(3.22)**	(9.72)**	(0.17)	(4.48)**	(1.69)	(2.92)**
Job control	0.418	0.406	0.059	0.033	0.045	0.067
	(19.58)**	(43.37)**	(4.14)**	(5.34)**	(4.11)**	(12.52)**
Job demands	-0.303	-0.104	-0.557	-0.564	0.073	0.063
	(6.39)**	(4.82)**	(16.49)**	(42.20)**	(3.25)**	(5.59)**
Management score	0.498	0.507	0.122	0.102	0.250	0.231
	(31.71)**	(69.71)**	(11.77)**	(21.87)**	(31.29)**	(54.43)**
Job security	1.190	1.459	0.213	0.465	0.164	0.280
	(15.76)**	(41.10)**	(4.64)**	(20.67)**	(4.32)**	(15.01)**
Constant	-8.943	-11.864	0.980	1.595	-2.087	-2.335
	(11.30)**	(35.91)**	(1.72)	(7.72)**	(5.69)**	(13.54)**
R^2	0.66	0.70	0.46	0.43	0.54	0.55
N	3,489	26,981	3,489	26,981	3,489	26,981

(1) Controls: *Demographics*: gender; age (6 dummies); race; married; disability; highest qualification (8 dummies); union member. *Job*: tenure (5 dummies); contract type (3 dummies); usual hours (5 dummies). (2) T-statistics in parentheses. Statistical significance: * $p<0.05$; ** $p<0.01$

Table 3: Entropy-balanced Estimates, 2004-2011

	Job Satisfaction		Job Contentment		Organizational Commitment	
	w/out occupation	with occupation	w/out occupation	with occupation	w/out occupation	with occupation
School	0.482	-0.142	0.296	0.088	0.672	0.392
	(2.09)*	(0.43)	(2.27)*	(0.61)	(5.95)**	(3.02)**
Occupation (Ref.: Other)						
Teacher		0.975		0.334		0.381
		(2.10)*		(1.75)		(1.85)
Teaching Assistant		1.235		0.359		0.565
		(2.74)**		(1.94)		(2.76)**
Education Officer		2.249		0.190		0.196
		(4.65)**		(0.55)		(1.18)
Administrator		0.061		0.292		0.155
		(0.17)		(1.80)		(0.64)
Nursery Nurse		0.341		-0.006		0.208
		(0.79)		(0.02)		(0.99)
Job quality:						
Log hourly pay	0.096	0.042	-0.316	-0.330	-0.031	-0.028
	(0.51)	(0.21)	(3.49)**	(3.81)**	(0.38)	(0.34)
Job control	0.408	0.405	0.021	0.022	0.052	0.053
	(14.29)**	(15.48)**	(1.41)	(1.40)	(2.83)**	(2.94)**
Job demands	0.040	0.022	-0.691	-0.694	0.151	0.147
	(0.35)	(0.20)	(14.85)**	(14.96)**	(5.85)**	(5.93)**
Management score	0.523	0.511	0.142	0.139	0.230	0.225
	(24.23)**	(25.85)**	(12.22)**	(12.52)**	(13.15)**	(12.04)**
Job security	1.227	1.256	0.161	0.166	0.208	0.209
	(13.49)**	(13.45)**	(2.46)*	(2.59)**	(4.03)**	(4.02)**
HRM:						
Participation	0.028	0.081	-0.005	0.009	-0.098	-0.087
	(0.22)	(0.62)	(0.09)	(0.16)	(1.59)	(1.41)
Selection	-0.211	-0.252	-0.112	-0.118	0.015	0.005
	(0.94)	(1.21)	(1.91)	(1.98)*	(0.17)	(0.05)
Incentives	0.390	0.262	0.056	0.053	-0.009	-0.004
	(2.22)*	(1.77)	(0.87)	(0.90)	(0.19)	(0.08)
Record keeping	0.292	0.296	-0.054	-0.069	0.067	0.051
	(1.91)	(2.12)*	(0.85)	(1.05)	(1.10)	(0.84)
Targets	-0.169	-0.074	-0.025	-0.018	0.028	0.048
	(1.57)	(0.70)	(0.51)	(0.36)	(0.45)	(0.76)
Team-working	-0.034	-0.029	-0.020	-0.012	0.049	0.055
	(0.28)	(0.26)	(0.47)	(0.29)	(0.86)	(0.99)
Training	-0.196	-0.215	-0.114	-0.109	-0.087	-0.082
	(1.07)	(1.27)	(1.59)	(1.59)	(1.36)	(1.34)
TQM	-0.080	-0.082	0.106	0.092	-0.087	-0.100

	(0.61)	(0.78)	(1.96)*	(1.77)	(1.56)	(1.84)
Managerial style:						
Work-life balance not up to individual	-0.689	-0.587	-0.079	-0.064	-0.086	-0.076
	(1.86)	(1.73)	(0.71)	(0.60)	(0.57)	(0.55)
Prefer to discuss change	-0.257	-0.161	0.136	0.133	0.053	0.056
	(0.84)	(0.55)	(1.33)	(1.34)	(0.43)	(0.46)
Prefer direct communication	0.006	0.068	0.248	0.258	0.187	0.198
	(0.03)	(0.36)	(2.73)**	(2.72)**	(2.19)*	(2.28)*
Female HR Manager	-0.058	-0.188	0.158	0.147	0.042	0.019
	(0.25)	(0.80)	(1.62)	(1.49)	(0.40)	(0.18)
2011	0.791	0.879	0.837	0.856	0.429	0.437
	(3.27)**	(3.76)**	(6.91)**	(7.37)**	(4.33)**	(4.46)**
Constant	-11.225	-11.229	2.848	2.811	-3.285	-3.314
	(17.50)**	(19.24)**	(10.00)**	(10.15)**	(8.73)**	(9.19)**
R^2	0.60	0.61	0.36	0.36	0.45	0.45
N	30,470	30,470	30,470	30,470	30,470	30,470

(1) OLS models weighted using entropy balancing weights for the treatment school. Weights obtained from STATA ebalance routine with the following covariates: *Demographics*: gender; age (6 dummies); race; married; disability; highest qualification (8 dummies); union member. *Job*: tenure (5 dummies); contract type (3 dummies); usual hours (5 dummies); single-digit occupation (9 dummies). *Workplace*: public sector; single-establishment organization; number of employees; region (11 dummies); establishment aged over 25 years; % age 16-21; % age 50+; age diversity; % female; gender diversity; % non-white; % part-time; % union density; % manager; % professionals; % associate professionals. (2) T-statistics in parentheses. Statistical significance: * $p<0.05$; ** $p<0.01$

Table 4: First Difference Estimates of Change in Other Workplace Outcomes and Changes in Worker Wellbeing and Commitment

	Job satisfaction	*Job contentment*	*Organizational commitment*	R^2	*N*
Workplace performance:					
Non-schools	0.114 (2.59)**	0.124 (0.99)	0.012 (0.09)	0.14	402
Schools	-0.241 (0.98)	-0.127 (0.31)	0.887 (2.93)**	0.33	37
Financial performance:					
Non-schools	0.046 (1.84)	0.037 (0.66)	-0.006 (0.10)	0.10	438
Schools	-0.154 (1.66)	0.075 (0.56)	0.268 (2.11)*	0.18	45
Labour productivity:					
Non-schools	0.028 (1.43)	0.051 (0.93)	-0.005 (0.09)	0.04	427
Schools	-0.009 (0.09)	-0.267 (1.55)	0.430 (3.46)**	0.32	40
Quality of service/product:					
Non-schools	0.028 (1.48)	0.004 (0.10)	0.071 (1.45)	0.09	471
Schools	-0.049 (0.69)	-0.104 (0.89)	0.247 (2.11)*	0.18	54
Absence rate:					
Non-schools	-0.000 (0.31)	-0.005 (1.03)	0.001 (0.16)	0.00	385
Schools	0.111 (1.71)	-0.019 (0.33)	-0.091 (1.25)	0.13	38
Quit rate:					
Non-schools	0.223 (0.36)	0.093 (0.10)	-1.743 (1.25)	0.03	460
Schools	1.116 (1.37)	1.472 (1.20)	-5.073 (3.01)**	0.44	57
Illness rate:					
Non-schools	0.089 (0.60)	-0.549 (1.51)	-0.192 (0.48)	0.02	534
Schools	-2.388 (1.22)	1.683 (1.23)	-1.302 (1.48)	0.18	60
Injury rate:					
Non-schools	-0.165 (1.70)	-0.168 (0.75)	0.068 (0.31)	0.10	534
Schools	0.089 (0.60)	0.017 (0.12)	0.116 (1.19)	0.02	60
Employment relations climate:					
Non-schools	-0.001 (0.03)	0.075 (2.61)**	0.102 (1.94)	0.14	533
Schools	0.130 (2.12)*	-0.056 (0.43)	-0.011 (0.14)	0.14	57

Notes: (1) First-difference OLS models for school and non-school workplaces separately. (2) Dependent variables are as follows. Financial performance, labour productivity and quality of service/output: ordinal scales where 1=below/a lot below average to 4=a lot better than average. Workplace performance: additive scale combining ordinal responses on financial performance, labour productivity and quality of service relative to other workplaces in the industry. Scale runs from 0 (below/a lot below average on all 3 items) to 9 (a lot better than average on all 3 items). The absence rate is the percentage of work days lost through sickness or absence at the workplace over the previous 12 months. The quit rate is the percentage of employees who left or resigned voluntarily in last year. The illness rate is the number of employees per 100 employees who have been absent in the last 12 months due to an illness caused or made worse by their work. The injury rate is the number of employees per 100 who have sustained an injury at work in the last 12 months. The climate measure is managerial responses to the question "how would you rate the relationship between management and employees generally at this workplace?" with responses coded on an ordinal scale from 1=poor/very poor to 4=very good. (3) All models contain controls for change in number of employees and change in log hourly wage between 2004 and 2011. (4) t-statistics in parentheses. Statistical significance: * $p<0.05$; ** $p<0.01$

Table A1: Schools and Other Workplaces in WERS 2004 and WERS 2011, Unweighted

	2004	2011	All
Private, not school	1691	1794	3485
Public, not school	464	620	1084
Primary school	85	141	226
Secondary school	45	84	129
Technical/vocational school	10	41	51
All	2295	2680	4975

Table A2: Occupational Counts in WERS Schools

	2004		2011		All	
	x-section	Panel	x-section	Panel	x-section	panel
Teachers	1314	508	1887	462	3201	970
Teaching Assistants	516	220	856	304	1372	524
Education Officer	20	20	31	18	51	38
Administrators	20	20	135	15	155	35
Nursery Nurses	28	27	112	47	140	74
Other	85	49	96	0	189	49
Total	1983	844	3117	846	5100	1690

Appendix Table A3: Full occupational classification for school employees

SOC2010 (without dots)	School Occupations: Teachers	Teaching	Education	Administr	Nursery N	Other	Total
managers and propriet	0	0	0	0	0	6	
higher education teac	64	0	0	0	0	0	
further education tea	354	0	0	0	0	0	
education officers, s	0	0	51	0	0	0	
secondary education t	1,526	0	0	0	0	0	
primary and nursery e	1,104	0	0	0	0	0	
special needs educati	91	0	0	0	0	0	
teaching professional	62	0	0	0	0	0	
housing and welfare o	0	0	0	0	0	1	
estimators, valuers a	0	0	0	0	0	15	
vocational and indust	0	0	0	0	0	37	
accounts+wages clerks	0	0	0	16	0	0	
filing and other reco	0	0	0	24	0	0	
library assistance/cl	0	0	0	20	0	0	
general office assist	0	0	0	32	0	0	
school secretaries	0	0	0	32	0	0	
receptionists	0	0	0	31	0	0	
nursery nurses	0	0	0	0	140	0	
childminders and rela	0	0	0	0	0	23	
educational assistant	0	1,372	0	0	0	0	
housekeepers and rela	0	0	0	0	0	10	
kitchen and catering	0	0	0	0	0	1	
cleaners, domestics	0	0	0	0	0	27	
school mid-day assist	0	0	0	0	0	59	
Total	3,201	1,372	51	155	140	179	

Appendix Table A4: Management Practices

HRM Domain:	**HRM measures for each domain:**	**KR20**
Incentives (0,4)	Any performance pay; managers appraised; 100% non-managers appraised; non-manager appraisal linked to pay	0.50
Records (0,9)	Sales, costs, profits, labour costs, productivity, quality, turnover, absence, training	0.77
Targets (0,11)	Volume, costs, profits, ULCs, productivity, quality, turnover absence, training, job sat, client sat	0.85
Teams (0,4)	100% largest non-managerial occupation in teams; teams depend on each other to perform work; team responsible for products and services; team jointly decides how to do the work	0.63
Training (0, 5)	80% largest non-managerial occupation had on-job training lasts 12 months; workplace has strategic plan with employee focus; Investors in People Award; standard induction programme for new staff in largest non-managerial occupation; number of different types of training provided is above population median.	0.57
TQM (0, 3)	Quality circles; benchmarking; formal strategic plan for improving quality.	0.47
Participation (0,5)	Formal survey of employee views in last 2 years; management-employee consultation committee; workforce meetings with time for questions; team briefings with time for questions; employee involvement initiative introduced in last 2 years.	0.55
Selection (0,7)	References used in recruitment; recruitment criteria include skills; recruitment criteria include motivation; recruitment criteria include qualifications; recruitment criteria include experience; recruitment includes personality or aptitude test; recruitment includes competence or performance test.	0.51
Note: KR20 is the Kuder-Richardson coefficient of reliability used for dichotomous items.		

Appendix Table A5: Descriptive Statistics for the OLS Estimation Sample

Variable	Obs	Mean	Std. Dev.	Min	Max
School	30,470	.1145061	.3184301	0	1
School type	30,470	.5309813	.8736566	0	4
Private school	30,470	.0192649	.1374567	0	1
Job satisfaction	30,470	4.120479	5.570192	-16	16
Job contentment	30,470	1.911716	2.635258	-6	6
Org commitment	30,470	2.261306	2.46486	-6	6
Male	30,470	.4687562	.4990311	0	1
Age<20	30,470	.0232688	.1507584	0	1
Age 20-29	30,470	.1770266	.3816975	0	1
Age 30-39	30,470	.2412865	.4278707	0	1
Age 40-49	30,470	.2813259	.4496535	0	1
Age 50-59	30,470	.2250738	.4176378	0	1
Age 60+	30,470	.0520184	.2220677	0	1
No qual	30,470	.133574	.3401996	0	1
Other qual	30,470	.0476534	.2130354	0	1
CSE	30,470	.0874303	.2824692	0	1
O-level	30,470	.271152	.4445616	0	1
A-level	30,470	.0510994	.2202042	0	1
2+ A-levels	30,470	.0915983	.2884628	0	1
Degre	30,470	.2289793	.4201828	0	1
Postgrad	30,470	.0885133	.2840446	0	1
White	30,470	.9451264	.2277372	0	1
Disabled	30,470	.0669839	.2499982	0	1
Married	30,470	.697998	.4591336	0	1
Union member	30,470	.3698064	.4827601	0	1
Log hourly pay	30,470	2.328546	.6200442	-.967584	6.992785
Teacher	30,470	.0929767	.2904045	0	1
Teacher assistant	30,470	.0311454	.1737134	0	1
Educ inspector	30,470	.0022317	.0471889	0	1
Admin	30,470	.1181162	.3227509	0	1
Nurse	30,470	.0071874	.0844747	0	1
Other occ	30,470	.7483426	.4339725	0	1
<10 hours	30,470	.0406301	.1974351	0	1
10-29 hrs	30,470	.1661634	.3722334	0	1
30-39 hrs	30,470	.3473909	.476149	0	1
40-47 hrs	30,470	.3084017	.461841	0	1
48+ hrs	30,470	.1374138	.3442894	0	1
Time feeling tense	30,470	3.301936	.9864051	1	5
Tenure <1 yr	30,470	.1271743	.3331736	0	1
Tenure 1<2yr	30,470	.1119134	.315265	0	1
Tenure 2<5yr	30,470	.2618641	.4396563	0	1
Tenure 5<10yr	30,470	.2158188	.4113959	0	1
Tenure 10+yrs	30,470	.2832294	.4505743	0	1
Permanent	30,470	.9348868	.2467296	0	1
Temporary	30,470	.0317361	.1752996	0	1
Fixed term	30,470	.0333771	.1796222	0	1
Manager	30,470	.1327863	.3393492	0	1
Professional	30,470	.1367903	.3436315	0	1
Associate prof	30,470	.1743682	.379432	0	1
Admin	30,470	.1752215	.3801627	0	1
Skilled	30,470	.0588119	.2352763	0	1
Caring	30,470	.0933705	.2909558	0	1
Sales	30,470	.0553003	.2285692	0	1
Operative	30,470	.0618313	.2408529	0	1
Elementary	30,470	.0962586	.2949504	0	1
Public	30,470	.3322941	.4710435	0	1
N employees	30,470	411.038	977.0276	5	11566
Single estab	30,470	.202363	.401768	0	1
North East	30,470	.0460781	.2096577	0	1
North West	30,470	.1384969	.3454264	0	1

Yorks/Humber	30,470	.0879225	.2831869	0	1
E Mids	30,470	.0690187	.2534901	0	1
W Mids	30,470	.0897276	.2857958	0	1
East	30,470	.0857237	.2799602	0	1
London	30,470	.1001313	.3001799	0	1
South East	30,470	.140466	.3474756	0	1
South West	30,470	.0870036	.281845	0	1
Scotland	30,470	.1053823	.3070505	0	1
Wales	30,470	.0500492	.2180501	0	1
WP age 25+	30,470	.311618	.4631622	0	1
Prop 50+	30,470	.2476713	.1528753	0	1.103448
Prop 16-21	30,470	.0594348	.1155247	0	1
Age diversity	30,470	.3921667	.1380775	-.3111981	.9382494
Prop female	30,470	.5156953	.2827509	0	1
Gender diversity	30,470	.3396165	.1483917	0	.5
Prop non-white	30,470	.0666767	.1244714	0	1
Prop PT	30,470	.2484848	.2518741	0	1
Prop union	30,470	.3202039	.3342021	0	1
% manager	30,470	10.41843	10.5611	0	88.88889
% professional	30,470	15.72933	21.94737	0	100
% ass prof	30,470	12.45074	19.84261	0	100
Job control	30,470	10.25113	3.642345	0	15
Job demands	30,470	5.369609	1.590029	0	8
Management score	30,470	14.6125	5.415148	0	24
Job security	30,470	2.551526	1.078625	0	4
Participation	30,470	.009889	.9955958	-2.506043	1.395848
Selection	30,470	.0076758	.9781595	-3.707694	1.326075
Incentives	30,470	.0229031	.9967329	-2.217115	1.552903
Records	30,470	.0174346	.9823647	-3.415767	.9222825
Targets	30,470	-.0028644	.9951019	-1.558177	1.757459
Team-working	30,470	.0074585	.9989587	-2.082537	1.252394
Training	30,470	-.0065644	.9974022	-2.433266	1.524343
TQM	30,470	.0015794	.999981	-1.909017	1.307863
HRMSCORE	30,470	.0122375	.9874465	-3.731285	2.195942
Work-life balance	30,470	.2107975	.4078816	0	1
Discuss change	30,470	.2999344	.4582364	0	1
Prefer direct	30,470	.285658	.4517347	0	1
Female HR	30,470	.5221201	.4995187	0	1
Year 2011	30,470	.4866754	.4998306	0	1

Appendix Table A6: Balance on Co-variates Pre- and Post-entropy Balancing

```
Treated units: 3489    total of weights: 3489
Control units: 26981   total of weights: 3489
Before: without weighting
             |              Treat                |             Control
             |      mean   variance   skewness   |      mean   variance   skewness
-------------+-----------------------------------+-----------------------------------
        male |     .2121      .1672      1.409   |     .5019        .25   -.007783
      age <20 |   .004872     .00485      14.22   |    .02565     .02499      6.001
     age 2029 |     .1155      .1022      2.406   |      .185      .1508      1.623
     age 3039 |     .2324      .1785      1.267   |     .2424      .1837      1.202
     age 5059 |     .2809       .202      .9751   |     .2179      .1704      1.367
      age 60+ |    .04786     .04559      4.236   |    .05256      .0498       4.01
  Other qual |    .03611     .03482      4.973   |    .04915     .04673      4.171
        CSE  |    .05704      .0538       3.82   |    .09136     .08302      2.837
      O-level |     .2069      .1642      1.447   |     .2795      .2014       .983
      A-level |    .04643     .04429      4.311   |     .0517     .04903      4.049
   2+ A level|    .07022     .06531      3.364   |    .09436     .08546      2.775
       Degree |     .3052      .2121      .8458   |     .2191      .1711      1.358
     Postgrad |     .2003      .1603      1.497   |    .07405     .06857      3.253
        White  |     .9564     .04168     -4.472   |     .9437     .05316     -3.848
     Disabled |    .06392     .05985      3.566   |    .06738     .06284      3.452
      Married |     .7756      .1741     -1.321   |      .688      .2147     -.8114
 Union member|      .642      .2299     -.5925   |     .3346      .2227       .701
 Log hrly pay|       2.32      .3926      .8207   |       2.33      .3834      1.105
 Professional|     .4758      .2495     .09699   |    .09295     .08432      2.804
     Ass Prof|    .05474     .05176      3.915   |     .1898      .1538      1.582
        Admin |    .08627     .07885      2.947   |     .1867      .1519      1.608
      Skilled |   .008598    .008527      10.64   |    .06531     .06104      3.519
       Caring |     .2499      .1875      1.155   |    .07313     .06778      3.279
        Sales |   .001146    .001145      29.48   |     .0623     .05842      3.622
   Operative |   .001433    .001431      26.36   |    .06964     .06479      3.381
  Elementary |    .08054     .07407      3.083   |    .09829     .08863      2.699
    < 10 hrs |    .08627     .07885      2.947   |    .03473     .03352      5.082
    10-29 hrs |     .2611       .193      1.088   |     .1539      .1302      1.918
    30-39 hrs |       .26      .1924      1.095   |     .3587        .23       .5892
      48+ hrs |     .1872      .1522      1.604   |      .131      .1138      2.188
 Tenure <1yr |    .09172     .08333      2.829   |     .1318      .1144      2.177
Tenure 1<2yr |    .09974     .08982      2.671   |     .1135      .1006      2.437
 Tenure 2<5yr|     .2545      .1898      1.127   |     .2628      .1938      1.078
 Tenure 5<10 |     .2327      .1786      1.265   |     .2136       .168      1.397
Temp contract|     .0493     .04688      4.164   |    .02947     .0286      5.565
  Fixed-term |    .05216     .04946      4.028   |    .03095     .02999      5.417
Public sector|     .8318        .14     -1.774   |     .2677       .196      1.049
 N employees |      131.5      35619      3.871   |     447.2    1062014      5.006
 Single estab|     .2069      .1642      1.447   |     .2018      .1611      1.486
  North East |    .05818     .05481      3.775   |    .04451     .04253      4.417
  North West |    .08971     .08169      2.872   |     .1448      .1238      2.019
Yorks/Humber |        .1     .09005      2.666   |    .08636      .0789      2.945
      E Mids |    .05503     .05202      3.903   |    .07083     .06581      3.346
      W Mids |     .1055     .09438      2.569   |    .08769        .08      2.915
        East |     .0771     .07118      3.171   |    .08684     .0793      2.934
  South East |     .1674      .1394      1.782   |      .137      .1182      2.112
  South West |    .08856     .08074      2.896   |     .0868     .07927      2.935
    Scotland |     .1204      .1059      2.333   |     .1034     .09275      2.604
       Wales |    .06965     .06482      3.381   |    .04751     .04526      4.254
  WP age 25+ |     .5239      .2495    -.09584   |     .2842      .2034      .9571
     Prop 50+|     .2834     .01768      .4188   |      .243     .02392      .8218
  Prop 16-21 |    .02161    .005167      7.713   |    .06433     .01419      3.527
Age diversity|     .3916     .01373     -1.037   |     .3922     .01976     -.8967
 Prop female |     .7856      .0219     -.3807   |     .4808     .07682     .02532
Gender
   diversity |     .2931      .0249     -.2163   |     .3456     .02133     -.7598
Prop non-white     .0534      .0146      3.499   |    .06839     .01558      3.628
     Prop PT  |     .4373     .04211      .1851   |     .2241     .06099      1.287
  Prop union |     .5709     .08702     -.3298   |     .2878      .1057      .7513
  % manager  |     7.298      32.47      1.998   |     10.82      120.3       2.23
% professional     43.19      368.1      .1195   |     12.18      386.3      1.884
  % ass prof |     8.029      133.2      2.018   |     13.02      424.6      1.905
```

After: _webal as the weighting variable

	Treat			Control		
	mean	variance	skewness	mean	variance	skewness
male	.2121	.1672	1.409	.2121	.1671	1.408
age <20	.004872	.00485	14.22	.004873	.004849	14.22
age 2029	.1155	.1022	2.406	.1155	.1022	2.406
age 3039	.2324	.1785	1.267	.2324	.1784	1.267
age 5059	.2809	.202	.9751	.2809	.202	.9751
age 60+	.04786	.04559	4.236	.04786	.04558	4.236
Other qual	.03611	.03482	4.973	.03611	.03481	4.973
CSE	.05704	.0538	3.82	.05704	.05379	3.82
O-level	.2069	.1642	1.447	.2069	.1641	1.447
A-level	.04643	.04429	4.311	.04643	.04428	4.311
2+ A level	.07022	.06531	3.364	.07022	.06529	3.364
Degree	.3052	.2121	.8458	.3052	.2121	.8458
Postgrad	.2003	.1603	1.497	.2003	.1602	1.497
White	.9564	.04168	-4.472	.9564	.04167	-4.472
Disabled	.06392	.05985	3.566	.06391	.05983	3.566
Married	.7756	.1741	-1.321	.7756	.1741	-1.321
Union member	.642	.2299	-.5925	.642	.2298	-.5925
Log hrly pay	2.32	.3926	.8207	2.32	.3338	-.4805
Professional	.4758	.2495	.09699	.4758	.2494	.09703
Ass prof	.05474	.05176	3.915	.05474	.05175	3.915
Admin	.08627	.07885	2.947	.08627	.07883	2.947
Skilled	.008598	.008527	10.64	.008599	.008525	10.64
Caring	.2499	.1875	1.155	.2499	.1875	1.155
Sales	.001146	.001145	29.48	.001148	.001147	29.46
Operative	.001433	.001431	26.36	.001444	.001441	26.26
Elementary	.08054	.07407	3.083	.08054	.07406	3.083
<10 hrs	.08627	.07885	2.947	.08627	.07883	2.947
10-29 hrs	.2611	.193	1.088	.2611	.1929	1.088
30-39 hrs	.26	.1924	1.095	.26	.1924	1.095
48+ hrs	.1872	.1522	1.604	.1872	.1521	1.604
Tenure <1yr	.09172	.08333	2.829	.09172	.08331	2.829
Tenure 1<2yr	.09974	.08982	2.671	.09974	.0898	2.671
Tenure 2<5yr	.2545	.1898	1.127	.2545	.1897	1.127
Tenure 5<10	.2327	.1786	1.265	.2327	.1786	1.265
Temp contract	.0493	.04688	4.164	.0493	.04687	4.164
Fixed term	.05216	.04946	4.028	.05216	.04944	4.028
Public	.8318	.14	-1.774	.8317	.1399	-1.774
N employees	131.5	35619	3.871	131.5	55046	3.513
Single estab	.2069	.1642	1.447	.2069	.1641	1.447
North East	.05818	.05481	3.775	.05818	.0548	3.775
North West	.08971	.08169	2.872	.08971	.08167	2.872
Yorks/Humber	.1	.09005	2.666	.1	.09003	2.666
E Mids	.05503	.05202	3.903	.05503	.052	3.903
W Mids	.1055	.09438	2.569	.1055	.09435	2.569
East	.0771	.07118	3.171	.0771	.07116	3.171
South East	.1674	.1394	1.782	.1674	.1394	1.782
South West	.08856	.08074	2.896	.08856	.08072	2.896
Scotland	.1204	.1059	2.333	.1204	.1059	2.333
Wales	.06965	.06482	3.381	.06965	.0648	3.381
WP age 25+	.5239	.2495	-.09584	.5239	.2494	-.09586
Prop 50+	.2834	.01768	.4188	.2834	.02234	.295
Prop 16-21	.02161	.005167	7.713	.02161	.002304	3.417
Age diversity	.3916	.01373	-1.037	.3916	.0141	-1.15
Prop female	.7856	.0219	-.3807	.7855	.02189	-.7855
Gender diversity	.2931	.0249	-.2163	.2931	.02182	-.3629
Prop non-white	.0534	.0146	3.499	.0534	.006643	4.189
Prop PT	.4373	.04211	.1851	.4373	.07198	.3353
Prop union	.5709	.08702	-.3298	.5709	.093	-.3298
% manager	7.298	32.47	1.998	7.298	45.57	1.768
% professional	43.19	368.1	.1195	43.19	1016	.03708
% ass prof	8.029	133.2	2.018	8.029	238.5	2.521